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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/865,028

Applicant(s)

WEINER, ANDREW M.

Examiner

Alex H Chan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the optical fiber as claimed in 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 5-11, 17-19, 25, 30-34, 40-42, 49, 51, 57-60, 66-68 and 77-79** are rejected under 35 U.S.C. 102(e) as being anticipated by U.s. Patent No. 6,275,623 B1 to Brophy et al (hereinafter Brophy).

Regarding claims 1, 77 and 79, Brophy discloses an optical processing system (Fig. 1) for reducing a distortion in an optical signal transmitted through an optical system having

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frequency-dependent polarization effects, the optical processing system comprising: a dispersive module (40) positioned to receive the optical signal and spatially separate frequency components of the optical signal (Col. 5, lines 4-15); a spatial light modulator (50) having multiple regions (i.e. pixels) with an independently adjustable polarization transfer matrix (Fig. 3 and Col. 6, lines 10-19), the SLM positioned to receive (Col. 5, lines 16-23) the spatially separated frequency components on the multiple regions; and a controller (62) coupled to the SLM, wherein during operation the controller causes the SLM to independently adjust the polarization transfer matrix of the multiple regions to reduce the distortion (i.e. improve signal-to-noise-ratio) of the optical signal (e.g. power (i.e. amplitudes), polarization-dependent losses, or varying phases or polarities, Col. 2, lines 17-19, lines 32-42, Col. 3, lines 20-25 and Col. 5, lines 24-33).

Regarding claims 25, 51 and 78, Brophy discloses all limitations as discussed above, and further discloses a controller configured to receive a precompensation signal (via or provided by 58, 60 and 62 of Fig. 1) indication of the frequency-dependent (i.e. wavelength) polarization effects (Col. 2, lines 26-34 and Col. 4, lines 55-59).

Regarding claims 5-8, 30-32 and 57-58, Brophy discloses multiple signals on separate wavelength bands (i.e. WDM, Col. 1, lines 52-55), includes at least one optical fiber (12 of Fig. 1), recombining (via 42 of Fig. 1) following adjustment and monitoring (via 60 of Fig. 1) the frequency-dependent polarization effects.

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Regarding claim 9, Brophy discloses the adjustments by the spatial light modulator are in response to the monitoring of the frequency-dependent polarization effects (e.g. 50 is adjusted by 62 in response from 58 and 60 of Fig. 1).

Regarding claims 10, 33 and 59, Brophy discloses the spatial dispersion of the frequency components comprises a prism (32 of Fig. 1 (not labeled), Col. 4, lines 59-61) or grating (40 of Fig. 1, Col. 5, lines 12-15).

Regarding claims 11, 34 and 60, Brophy discloses the spatial light modulator comprises at least one liquid crystal layer (e.g. since it's a liquid crystal modulator, it comprises at least one liquid crystal layer, Col. 3, lines 40-42).

Regarding claims 17-19, 40-42 and 66-68, Brophy discloses an adjustment to phase (Col. 2, lines 17-19, lines 32-42, Col. 3, lines 20-25 and Col. 5, lines 24-33).

Regarding claim 49, Brophy discloses using the SLM to selectively vary the intensity (Col. 2, lines 17-19, lines 32-42, Col. 3, lines 20-25 and Col. 5, lines 24-33).

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 25, 51 and 77-79** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,719,650 to Wefers (hereinafter Wefers) in view Brophy.

Regarding claims 1, 25 and 51, Wefers discloses optical processing method (Fig. 5) comprising: spatially dispersing frequency components (via 16a and 18a) of an optical signal on a spatial light modulator (12 (not labeled on Fig. 5) and Col. 5, lines 55-66); and independently adjusting the polarization transfer matrix (i.e. each pair of pixels) of multiple regions of the SLM to at least partially precompensate the optical signal (e.g. via controlling the voltages that are applied to each registered pixel pair of phases and amplitudes of each of the dispersed optical frequencies, Col. 5, line 66-Col. 6, line 13) for distortions caused by the frequency dependent polarization effects in the downstream optical system. Wefers does not explicitly disclose providing a precompensation signal indicative of frequency-dependent polarization effects in a downstream optical system. Brophy discloses providing a precompensation signal (via 58, 60 and 62 of Fig. 1) indicative of frequency dependent (i.e. wavelength) polarization effects (Col. 2, lines 26-34 and Col. 4, lines 55-59) in a downstream optical system (via 12 of Fig. 1 or 166 of Fig. 10). Accordingly, one of the ordinary skilled in the art would have been motivated to provide a precompensation signal indicative of frequency dependent polarization effects for reducing the differences between the monitored and desired power (or phases and polarities, Col.

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2, lines 17-19, lines 32-42, Col. 3, lines 20-25 and Col. 5, lines 24-33) distributions among the channels (Col. 2, lines 13-17). Therefore, it would have been obvious to one of ordinary from the same endeavor at the time the invention was made to modify the spatial light modulator of Wefers by incorporating a precompensating signal because this reduces the differences between the monitored and desired power, phases or polarities distributions among the channels as suggested by Brophy. Also, precompensation in an optical system for compensating PMD is notoriously well known and conventional. Since optical signals being transmitted via optical fibers are often distorted by PMD due to variations in the direction of polarization of the input signal and from added fluctuations caused by longitudinal and transverse variations in the refractive index profile along the fiber or other transmitting means, one of artisan could have been motivated to incorporate a precompensation signal (e.g. supplied by controlling means, feedback means or amplifying means) at the input for precomensating dispersion before the distorted signal is transmitted. Otherwise, the distorted signal can degrade, reduce and downgrade the bandwidth, signal-to-noise ratio and efficiency of transmission as known in the art.

Regarding claims 77-79, Wefers in view of Brophy discloses all limitations as discussed above, and further discloses a controlled coupled to SLM (62 of Fig. 1, Brophy).

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6. **Claims 1-4, 6-9, 11, 25-29, 31-32, 34, 48, 51-56, 58, 60 and 77-79** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,504,575 to Stafford in view of U.S. Patent No. 6,385,357 B1 to Jopson et al (hereinafter Jopson).

Regarding claims 1, 25 and 51, Stafford discloses an optical processing method (Fig. 1) comprising spatially dispersing frequency (i.e. wavelength, Col. 2, lines 15-19) components (via 16 of Fig. 1) of an optical signal on a spatial light modulator (SLM) (20 of Fig. 1); and independently adjusting (via 34 of Fig. 1) the polarization transfer matrix of multiple regions (i.e. cells) of the SLM to at least partially precompensate (e.g. Col. 3, lines 23-34 and Col. 5, lines 15-23 and Col. 5, line 60-Col. 6, line 5) the optical signal for distortions caused by the frequency dependent polarization effects in the downstream optical system.

Stafford does not explicitly disclose providing a precompensation signal indicative of frequency-dependent polarization effects in a downstream optical system. Jopson discloses providing a precompensation signal (via 760 and Col. 8, lines 27-48) indicative of frequency-dependent polarization effects (e.g. due to 730 and Col. 6, line 47-Col. 7, line 6) in a downstream optical system (Col. 8, lines 21-49). Accordingly, one of the ordinary skilled in the art would have been motivated to employ a precompensated signal so that the first and higher order PMD in an optical fiber is compensated at the output of the fiber by subjecting the output light wave to additional frequency dependent PMD, resulting in the negation of PMD effect of the fiber (Col. 4, lines 39-45). Therefore, it would have been obvious to one of artisan from the same endeavor at the time the invention was made to modify the SLM spectrometer of Stafford by incorporating a precompensated signal because this helps to compensate the first and higher order PMD in an optical fiber as suggested by Jopson. Also, precompensation in an optical

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system for compensating PMD is notoriously well known and conventional. Since optical signals being transmitted via optical fibers are often distorted by PMD due to variations in the direction of polarization of the input signal and from added fluctuations caused by longitudinal and transverse variations in the refractive index profile along the fiber or other transmitting means, one of artisan could have been motivated to incorporate a precompensation signal (e.g. supplied by controlling means, feedback means or amplifying means) at the input for precompensating dispersion before the distorted signal is transmitted. Otherwise, the distorted signal can degrade, reduce and downgrade the bandwidth, signal-to-noise ratio and efficiency of transmission as known in the art.

Regarding claims 77-79, Stafford in view of Jopson discloses all limitations as discussed above, and further discloses a controller (Fig. 1 and Col. 3, lines 23-34, Stafford or 720 of Fig. 7, Jopson) coupled to the SLM configured to receive a precompensation signal (e.g. via 760 and 765 of Fig. 7, Jopson).

Regarding claims 2, 26 and 52, Jopson discloses the frequency dependent polarization effects cause wavelength dependent changes in the state of polarization (SOP) of the optical signal (Col. 6, lines 21-29).

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Regarding claims 3, 27 and 53, Jopson discloses the frequency-dependent polarization effects include polarization mode dispersion (PMD) effects (e.g. introduced by 730 of Fig. 7 and Col. 2, lines 18-24).

Regarding claims 4, 28 and 54, Jopson discloses the polarization mode dispersion effects can be represented by a frequency-dependent polarization transfer matrix characterized by a frequency-dependent differential delay and principle states of polarization (Col. 2, lines 37-40).

Regarding claim 29, Stafford in view of Jopson discloses the PMD effects define wavelength-dependent principle states of polarization (PSP) in the downstream optical system, and wherein the adjustments are selected to align the state of polarization (e.g. by controlling which cells of the SLM are activated or deactivated, Col. 3, lines 13-34, Stafford or Col. 6, lines 32-38, Jopson) of at least some of the spatially dispersed frequency components with the wavelength-dependent PSP in the downstream optical system.

Regarding claims 6 and 31, Jopson discloses the downstream optical system includes at least one optical fiber (e.g. 730, the link which connects 720 to 745 or 745 to 750 of Fig. 7).

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Regarding claims 7, 32 and 58, Stafford discloses recombining the spatially dispersed frequency components (via 48 of Fig. 2 or 24 of Fig. 1) following the adjustments by the spatial light modulator.

Regarding claims 8-9, Stafford in view of Jopson discloses monitoring the frequency-dependent polarization effects (e.g. via 34 of Fig. 1, Stafford or 760 and 765 of Fig. 7, Jopson) from the optical system and the adjustments by the spatial light modulator are in response to the monitoring of the frequency-dependent polarization effects (Col. 3, lines 30-34, Stafford or Col. 8, lines 21-48, Jopson).

Regarding claims 11, 34 and 60, Stafford discloses the spatial light modulator comprises at least one liquid crystal layer (e.g. a liquid crystal device must have at least one liquid crystal layer, Col. 1, lines 59-61).

Regarding claim 48, Jopson discloses the frequency-dependent polarization effects include frequency-dependent polarization dependent loss (PDL), and wherein the adjustments are selected to align the state of polarization (SOP) of at least some of the spatially dispersed frequency components with the frequency-dependent axis that minimizes loss from the frequency-dependent PDL (e.g. via polarization controller for aligning the PSP and rotation axes).

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of their sweeps and by aligning the frequency dependent fiber PMD and frequency dependent compensating PMD so that a canceling of PMD results, Col. 4, lines 47-63 and Col. 6, line 58- Col. 6, line 5, Col. 8, lines 16-20 and by aligning output PMD vector and compensator PMD vector at carrier frequency so that they cancel, Col. 11, lines 55-63).

Regarding claims 55-56, Jopson discloses the model of PMD effects has statistics that differ from (e.g. caused by a particular device which is differ from optical fiber) or are similar to (i.e. span of optical fiber) those of an optical fiber having PMD (Col. 1, lines 60-65).

7. **Claims 5,10, 30, 33, 57 and 59** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stafford in view of Jopson as applied to claim 25 above, and further in view of U.S. Patent No. 6,275,623 B1 to Brophy et al (hereinafter Brophy).

Regarding claims 5, 30 and 57, Stafford in view of Jopson fails to disclose multiple signals on separate wavelength bands. Brophy discloses disclose multiple signals on separate wavelength bands (via WDM, abstract). One of the ordinary could have been motivated to employ multiple signals on separate wavelength bands because WDM provides a number of different wavelength channels (Col. 1, lines 13-14) for simultaneous transmission. Therefore, it would have been obvious to one of artisan from the same endeavor at the time the invention was made to modify the SLM spectrometer of Stafford in view of Jopson by incorporating multiple signals on separate wavelength bands because it offers a number of different wavelength

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channels as taught by Brophy. Also, transmitting multiple signals on separate wavelength bands is extremely conventional and widely used technology. Since transmitting multiple signals on separate signals allows greater efficiency of an optical system, one of the ordinary could have been motivated to employ an optical signal comprising multiple signals on separate wavelength bands.

Regarding claims 10, 33 and 59, Brophy discloses the spatial dispersion of the frequency components comprises using a grating, a prism, an arrayed waveguide grating, or a virtually imaged phase array (122 of Fig. 8).

8. **Claims 12-24, 35-47, 49-50, 61-69 and 70-76** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stafford in view of Jopson as applied to claim 25 above, and further in view of U.S. Patent No. 5,719,650 to Wefers et al (hereinafter Wefers).

Regarding claims 12-16, 35-39 and 61-65, Stafford in view of Jopson fails to disclose a spatial light modulator comprises at least two or three liquid crystal (LC) layers, wherein the LC molecules in each of the LC layers are oriented along an axis, and wherein the axis for one of the LC layers is different from the axis of another of the LC layer. Wefers discloses a spatial light modulator comprises at least two (Col. 11, lines 11-22) or three (Col. 12, lines 1-20) liquid crystal (LC) layers, wherein the LC molecules in each of the LC layers are oriented along an axis (e.g. first, second, third or fourth axis), and wherein the axis for one of the LC layers is different

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from the axis of another of the LC layer (e.g. first axis is disposed at 0° relative to polarization axis, second axis angled at about $42-48^\circ$ relative to first axis and fourth axis is angled at about 90° relative to polarization axis). Accordingly, one of the ordinary could have been motivated to employ the above means for providing a light modulator which allows one to vary independently the phase and amplitude profile of an output optical field (Col. 1, lines 49-54). Therefore, it would have been obvious to one of artisan from the same endeavor at the time the invention was made to modify the SLM spectrometer of Stafford in view of Jopson by incorporating the above means because it allows one to vary independently the phase and amplitude profile of an output optical field as taught by Wefers.

Regarding claims 17-20, 40-43 and 66-69, Wefers discloses the adjustments to the polarization transfer matrix are selected to cause an adjustment to at least one of the phase, the state of polarization, and amplitude of each of multiple subsets of the spatially dispersed frequency components (Col. 1, lines 31-45 and Col. 5, lines 10-44).

Regarding claims 21 and 44, Stafford in view of Jopson and Wefers discloses the frequency-dependent polarization effects include polarization mode dispersion effects (e.g. introduced by 730 of Fig. 7 and Col. 2, lines 18-24, Jopson), and the adjustments caused by the SLM at least partially precompensate (e.g. via a controller, Col. 6, lines 26-28 and Col. 7, lines 44-48 Wefers) for the PMD.

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Regarding claims 22 and 45, Wefers discloses the distortions comprise broadening of mean pulse duration (e.g. Fig. 7A and Col. 6, lines 64-67) in the optical signal, and wherein the adjustments reduce the broadening (e.g. Fig. 6B and by pulse shaping, Col. 1, lines 22-63 or by adjusting phases and amplitudes of incident field) caused by the downstream optical system.

Regarding claims 23 and 46, Wefers discloses the adjustments are selected to cause the state of polarization (SOP) of at least some of the frequency components to be substantially the same (e.g. since applying voltages via a controller to each pixel can adjust the polarization for a component of the field (Col. 4, lines 49-67), one could have been motivated to select an adjustment to cause the state of polarization of frequency components to be substantially the same) following transmission through the downstream optical system.

Regarding claims 24, 47 and 70-72, Jopson discloses the adjustments are selected to cause the delay of the at least some of the frequency components to be substantially the same following transmission through the downstream optical system (e.g. the group time delay (or DGD as known in the art) of PMD can be eliminated (or adjusted) by launching the light beam with a polarization that is aligned with one of two input PSP, Col. 4, lines 1-16 or by adjusting PMD so that Ω_1 and Ω_2 can be adjusted since DGD is a function of frequency along a particular PSP and change of direction of PSP, Col. 6, lines 21-29 and Col. 12, lines 5-14).

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Regarding claims 49-50, Stafford in view of Jopson and Wefers discloses using the SLM to selectively vary the intensity of at least some' of the spatially dispersed frequency components (via processor controlling cells of SLM, Col. 3, lines 23-34, Stafford, or by controlling applied voltages, Col. 7, lines 44-48 and Col. 6, lines 26-28, Wefers).

Regarding claims 73-76, Stafford in view of Jopson and Wefers discloses the adjustments are selected to cause the phase (i.e. direction) of the at least some of the frequency components to be substantially the same (e.g. by changing its corresponding frequency, Col. 2, lines 51-61 and Col. 3, lines 52-56 or by adjusting PSP, Col. 4, lines 17-24, Jopson or by via filters which impart linear spectral phase sweeps on x and y polarized components, Col. 7, lines 10-15, Wefers) and vary substantially linearly with frequency (e.g. phase (or direction) can be vary linearly since it is directly related to frequency, Col. 2, lines 51-61 and Col. 6, lines 21-29 and Col. 8, lines 7-10, Jopson) following transmission through the downstream optical system.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hashimoto is cited to show an optical information processor comprising SLM and other optics element (Fig. 8 and 11). Cao is cited to show how PMD are compensated (abstract and Fig. 7-8). Kobayashi is cited to demonstrate a spatial light modulator having three crystal layers (Col. 50, line 36-Col. 51, lines 30 where axes differ by quarter wavelength (45°)). Sweatt

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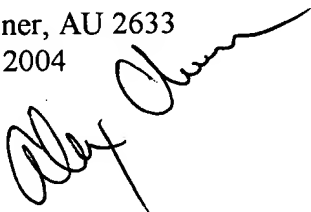
et al (Fig. 9), Dultz (Fig. 5 and 7), Tai (Fig. 3-6), Komine (Fig. 1), Clark (Fig. 1), Handschy et al (Fig. 1 and 7), Sampell et al (Fig. 1 and 3), and Fjarlie (Fig. 1) are cited to show yet another spatial modulator in optical processing. Way et al is cited to show a PMD controller and detector (Fig. 2-3 and 6). Kikuchi is cited to show a method for compensating PMD (Fig. 6). Vu et al (Fig. 1) and Wu et al (Fig. 2 and 15) are cited to show a polarization rotator array (SLM) for controlling polarization input beam. Mahoney et al (Fig. 1-10), Riza (Fig. 2, 4, 6 and 13), Broomfield et al (Fig. 2), Ansari et al (Fig. 2, 3, 5 and 6), Kottas (Fig. 6-8 and 10), White et al (Fig. 1-2) and Horner et al (Fig. 1) are cited to show optical processing utilizing spatial light modulator and other optics element.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex H Chan whose telephone number is (703) 305-0340. The examiner can normally be reached on Monday to Friday (8am to 6pm EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Alex Chan
Patent Examiner, AU 2633
January 16th, 2004



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